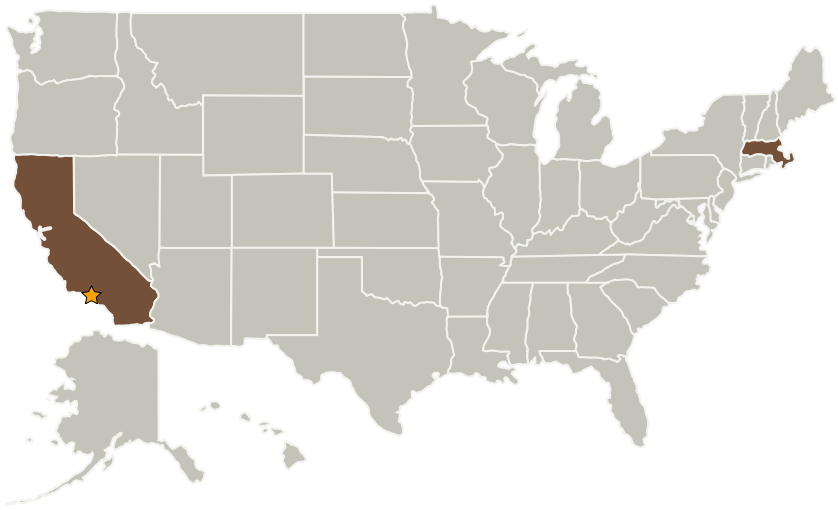
Spacecraft Cabin Particulate Monitor, Phase I

Completed Technology Project (2008 - 2008)

Project Introduction

We propose to design, build and test an optical extinction monitor for the detection of spacecraft cabin particulates. This monitor will be sensitive to particle sizes ranging from a few nanometer to tens of micrometers in diameter. Designed to utilize commercial off-the-shelf components, the monitor, once calibrated, will require no recalibration and only periodic baseline determinations, a process which can be automated as part of the operation of the instrument. It employs no consumables. This monitor employs cavity attenuation phase shift technology and involves the use a light emitting diode coupled to a low-loss optical cavity. The Phase I project will involve a proof-of-principle demonstration followed by the monitoring of ambient particulates in an urban area.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Aerodyne Research, Inc	Supporting Organization	Industry	Billerica, Massachusetts

Spacecraft Cabin Particulate Monitor, Phase I

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Spacecraft Cabin Particulate Monitor, Phase I

Completed Technology Project (2008 - 2008)

Primary U.S. Work Locations	
California	Massachusetts

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Andrew Freedman

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.4 Environmental Monitoring, Safety, and Emergency Response
    - TX06.4.1 Sensors: Air, Water, Microbial, and Acoustic